A review of Part 135 (10 or more) maintenance requirements
By Bill O'Brien

A Part 135 operator is an air carrier certificated by the federal government that has the authority to conduct flight operations in air commerce of persons or property for hire. The authorization to conduct operations is spelled out on the operator's Air Agency certificate and the accompanying operations specifications. For maintenance purposes Part 135 is broken into two separate categories, nine passenger seats or less, and 10 passenger seats or more.

Who is responsible for keeping Part 135 aircraft airworthy?

Federal Aviation Regulation (FAR) section 135.413 clearly states that the operator is responsible for the airworthiness of the aircraft they operate.

But the person in the Part 135 organization given all the maintenance responsibility is formally called the director of maintenance.

Any individual who holds the position of director of maintenance (DOM) for a Part 135, operating 10 or more passenger seats aircraft, is performing similar duties and shares similar responsibility and levels of stress as a DOM for a major Part 121 air carrier.

This is because the maintenance requirements for both Part 121 and Part 135 are regulatory twins that are very close in scope and detail.

Therefore, the FAA expects the same level of professionalism from a Part 135, 10 or more, DOM as it does from a DOM of a major air carrier.

Depending on the amount of responsibility the DOM is charged with, there may be a number of other programs that the DOM may be responsible for. Some of these include: managing the operator's reliability program, parts pooling, developing pro-rated times for components, arranging and monitoring contract maintenance, and performing maintenance for other operators.

This article, however, only covers the essential programs related to Part 135, 10 or more maintenance. These are:

- Continuing analysis and surveillance program.
- Training program for maintenance and inspection personnel.
- Mechanical reliability report.
- Mechanical interruption summary report.

Continuous analysis and surveillance program (CASP)

A continuous analysis and surveillance program (CASP) has two functions: an audit function and a performance/analysis function.

The audit function examines the administrative and supervisory maintenance procedures including work performed by contractors, other air operators, and repair stations. The audit for maintenance is a continuous program and should concentrate on at least the following areas:

- Review maintenance procedures in the CAMP manual to ensure they are current, reasonable, efficient, and effective.
- Ensure that maintenance publications and data are current and available to mechanics and inspectors.
- Ensure that major repairs and major alterations are classified properly, accomplished with approved data, and recorded in the aircraft's maintenance records.
- Review maintenance records for accuracy and completeness as well as ensuring that carry-over items and deferred maintenance are properly handled.
- Inspect contractors and ensure they are properly staffed, have the current data and instructions, and are qualified and equipped to perform the functions called out in the operator's manual.

• Ensure that part distributors are reliable, and that they supply only FAA-approved PMA, TSO, or manufacturer's produced parts by inspecting the part, the invoices, parts tags, and any other additional maintenance records.
• Determine if calibrated tools and test equipment are maintained and have the current inspection or calibration date.
The "performance analysis function" of the CASP is a must-perform daily management task. CASP looks at two important performance areas: equipment and people who maintain that equipment.

Equipment
CASP should include daily and long-term monitoring of aircraft performance, including the individual performance and reliability of critical components such as engines, brakes, landing gear, propellers, etc. Additional items that should be monitored include:
• Review of daily mechanical failures.
• Deferred maintenance items including excessive number and recurrent items, be it on one aircraft or the fleet.
• Pilot reports (ATA code) in the maintenance record.
• Mechanical interruption reports.
• Engine failures and their causes.
• Identifying high number of component failures.
• Number of reworked items.

People
CASP should concentrate on the performance of the maintenance folks — not only the people who work on the aircraft, but the parts department, and the inspection department as well.
Begin by just asking some questions:
• When did these failures take place?
• Are there more write-ups in the maintenance record a couple of days after a major inspection than what was there before the inspection?
• Was there a high number of failures on replacement parts?
• Can these failures be traced back to an individual mechanic or maintenance crew?
• Is an excessive amount of time taken by maintenance personnel to "fix" a problem?
• Are problems fixed or are just parts replaced?
• Do your mechanics need training? Special tools?
• Is employee morale the problem?
Analysis
After a problem is identified, then the DOM and their team must find the cause of and the solution for the problem. For example if the audit section of CASP uncovers a problem dealing with incomplete or sloppy record keeping, then a little training in record keeping might be the solution. If there is a problem with continuing failure of a certain component, then the cause might be the part, the accuracy of the instructions on how to install the part, or the mechanic who installed it.
A CASP program if properly followed and maintained will keep burnishing away all your organizational warts and blemishes almost without pain or disruption of your daily routine. On the other hand, a haphazard or carelessly run CASP program will never warn you when you are in trouble.

Training program for inspection and maintenance personnel
FAR 135.433 requires all Part 135 operators or persons performing maintenance for Part 135 operators to have a training program for both mechanics and inspectors. This is to ensure that

maintenance personnel are fully informed about new procedures or new equipment and are competent to perform their duties.

Mechanical reliability reports
The operator (usually the DOM) is required by 135.415 to report any occurrence or malfunction, or defects found in one or more of the 16 following aircraft systems — specifically:

• Fires during flight and if the fire warning system worked properly.
• Fires during flight not protected by a fire warning system.
• False fire warnings during flight
• Exhaust systems that cause damage to the aircraft during flight.
• Smoke or noxious fumes in the crew or passenger compartments.
• Engine shutdowns during flight due to flame-outs.
• Engine shutdowns in flight that cause external damage to the engine or aircraft.
• Engine shutdowns due to icing or FOD ingestion.
• Multiple engine shutdowns during flight.
• Propeller feathering systems activated or failure of the systems to control propeller overspeed.
• Fuel or fuel dumping systems that affect safety of flight.
• Unwanted gear extension or retraction including opening or closing of landing gear doors during flight.
• Loss of brakes or brake component failures while the aircraft is in motion.
• Major repairs performed on the aircraft structure.
• Any cracks, permanent deformation, or corrosion that exceeds the manufacturer or FAA standards.
• Any failure of any system in flight that requires the crew to take emergency action.
• And finally, there's the paragraph which states that any failure that scares the bejeebers out of flight crew or maintenance crew must be reported.
If any of the above failures occur, then the operator has 72 hours to send a written report covering the 24-hour period (9 a.m. to 9 a.m. the next day ) in which the failure took place, and send it to the local Flight Standards District Office.

Mechanical interruption
summary report
This is a monthly report due the 10th of the following month if any interruption to a flight, unscheduled change of aircraft en route, or unscheduled stop or diversion from a route is caused by known or suspected mechanical malfunctions or if problems arise that are not covered by the mechanical reliability report.